Energy Efficiency and Renewable Energy
Federal Energy Management Program

How to Buy Energy-Efficient Family-Sized Commercial Clothes Washers

Why Agencies Should Buy Efficient Products

- *Executive Order 13123 and FAR section 23.704 direct agencies to purchase products in the upper 25% of energy efficiency, including all models that qualify for the EPA/DOE* ENERGY STAR® *product labeling program.*
- *Agencies that use these guidelines to buy efficient products can realize substantial operating cost savings and help prevent pollution.*
- *As the world's largest consumer, the federal government can help "pull" the entire U.S. market towards greater energy efficiency, while saving taxpayer dollars.*

Federal Supply Source:

- General Services Administration (GSA)
  Phone: (816) 926-2389 (Gail Allen)
  www.fss.gsa.gov

For More Information:

- DOE's Federal Energy Management Program (FEMP) Help Desk and World Wide Web site have up-to-date information on energy-efficient federal procurement, including the latest versions of these recommendations.
  Phone: (800) 363-3732
  www.eren.doe.gov/femp/procurement
- Consortium for Energy Efficiency (CEE) provides information on energy-efficient clothes washers that meet this recommendation.
  Phone: (617) 589-3949
  www.ceeformt.org
- Lawrence Berkeley National Laboratory provided supporting analysis for this recommendation.
  Phone: (202) 646-7950

Efficiency Recommendation

Washer Tub Volume	Energy Use Measurement	
	Rated Annual Energy Use	Energy Factor
1.9 – 2.5 cu. feet	410 kWh or less	2.5 $ft.^3$/kWh or higher
2.6 – 3.3 cu. feet	520 kWh or less	2.5 $ft.^3$/kWh or higher

Definition

Rated annual energy use is based on 392 cycles (washings) per year, as prescribed by the DOE test method for residential models (in 10 CFR 430, Subpart B, Appendix J). However, most commercial machines are used much more frequently than this (see "Cost-Effectiveness Example" on next page).

What is a "Family-Sized" Commercial Clothes Washer?

Family-sized commercial clothes washers look very similar to residential-style clothes washers in terms of size, features, connections, and mounting. The differences compared to residential models are sturdier frames and mechanical components, a modified control panel (with fewer choices of control settings), and often a coin box, debit card reader or other revenue collecting device.

Where to Find Energy-Efficient Models

The federal supply source for clothes washers is the General Services Administration (GSA). GSA sells clothes washers through Schedule 41-I, as well as through its on-line shopping network, *GSA Advantage!*

Because commercial clothes washers are not subject to federal appliance efficiency standards, they do not have the yellow Federal Trade Commission "EnergyGuide" labels identifying estimated annual energy use. When buying from either GSA or a commercial source, choose models that qualify for the Consortium for Energy Efficiency (CEE) Commercial Family-sized Washer Initiative (see "For More Information"), all of which meet the efficiency levels recommended above. If a specific model is not listed on CEE's initiative, request that the manufacturer or distributor provide an annual energy consumption value based on the same test procedure (in 10 CFR 430) as the residential "EnergyGuide" label program requires.

User Tips

Selecting cold water wash and lower load-size settings, where appropriate for the load, will reduce energy use.

Clothes Washer Cost-Effectiveness Example (2.84 cu. ft. tub volume)

Performance	Base Model	Recommended Level	Best Available
Energy Factor (ft^3/kWh)	1.18	2.50	3.80
Annual Energy Use (with commercial usage)	4,390 kWh	2,070 kWh	1,360 kWh
Annual Water Use[a]	71,200 gallons	45,600 gallons	45,600 gallons
With Electric Water Heating			
Annual Electricity Cost	$260	$120	$80
Annual Water/Sewer Cost	$280	$180	$180
Lifetime Utilities Cost	$3,250	$1,850	$1,600
Lifetime Utilities Cost Savings	–	**$1,400**	**$1,650**
With Gas Water Heating			
Annual Gas Cost	$55	$24	$15
Annual Electricity Cost	$21	$19	$16
Annual Water/Sewer Cost	$280	$180	$180
Lifetime Utilities Cost	$2,200	$1,400	$1,300
Lifetime Utilities Cost Savings	–	**$800**	**$900**

a) The Federal Trade Commission does not require manufacturers to report water consumption, so there is no recommended level of water use included here. However, all washers meeting the CEE energy recommendation use less than 25 gallons per cycle; therefore, the conservative assumption of 25 gallons/cycle is used for both the "Recommended" and "Best Available" models.

Definitions

Energy Factor is the inverse of the power consumption of one full wash cycle times the clothes washer tub volume. More simply, it is the volume of clothes washed, in cubic feet, per one kilowatt hour (kWh) of electricity used.

Lifetime Utilities Cost is the sum of the discounted value of annual energy and water costs based on average usage and an assumed clothes washer life of 7 years. Future energy price trends and a discount rate of 3.4% are based on federal guidelines (effective from April, 2000 to March, 2001). Future water and sewer costs are conservatively assumed to increase only at the rate of inflation.

Cost-Effectiveness Assumptions

Annual energy use in this example is based on the standard DOE test procedure for a clothes washer undergoing an average of 5 cycles per day (typical use for a commercial unit). Energy used to heat the water is roughly 85% of the total energy use shown. The assumed electricity and gas prices are 6¢/kWh and 40¢/therm, the federal average energy prices in the U.S. The assumed combined water and waste-water cost is $4/1,000 gallons.

Using the Cost-Effectiveness Table

In the example shown above, a clothes washer with electric water heating and an energy factor of 2.50 is cost-effective if its purchase price is no more than $1,400 above the price of the Base Model. The Best Available model, with an energy factor of 3.80, is cost-effective if its price is no more than $1,650 above the price of the Base Model. With gas water heating, the same two models are cost-effective if their purchase prices are no more than $800 and $900 above the price of the Base Model, respectively.

What if my Utility Prices or Usage are different?

For a different number of washes per day, multiply the Lifetime Utility Cost Savings by: $\left(\frac{Your\ cycles\ per\ day}{5\ cycles\ per\ day}\right)$. Adjustments for different utility rates are also possible, but more difficult, and should be performed on Annual Electricity, Gas, and Water/Sewer Costs separately using these ratios: $\left(\frac{Your\ price\ in\ ¢/kWh}{6.0\ ¢/kWh}\right)$, $\left(\frac{Your\ price\ in\ ¢/therm}{40.0\ ¢/therm}\right)$, and $\left(\frac{Your\ price\ in\ \$/1000\ gallons}{\$4.00/1000\ gallons}\right)$. The sum of the resulting annual cost figures should then be multiplied by 6.14 (a "Uniform Present Value" figure assuming a 7-year lifetime and a 3.4% discount rate) to approximate the Lifetime Utilities Cost.

Metric Conversions

1 cu. foot = 0.028 cu. meters
1 gallon = 3.8 liters

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